UNITED STATES PATENT AND TRADEMARK OFFICE

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10/749,569	12/30/2003	Ho Sang Sung	1998.1004	8996

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2008*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-15* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *15 January 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☒ All   b)☐ Some * c)☐ None of:
    1.☒ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
      Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
      Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   In response to the office action from 9/13/2007, the applicant has submitted an
amendment, filed 1/15/2008, adding claims 13-15, while arguing to traverse the art rejection
based on the limitation regarding the use of an adaptive codebook with a first and second fixed
codebook *(Amendment, Page 16)*. Applicant's arguments have been fully considered, however
the previous rejection is maintained due to the reasons listed below in the response to arguments.

2.   In response to amended Figure 1, the examiner has withdrawn the previous drawing
objections.

3.   In response to the amended title, the examiner has withdrawn the previous corresponding
objection.

4.   In response to the amendment of the abstract, the examiner has withdrawn the previous
corresponding objection.

5.   In response to the amended claims, the examiner has withdrawn the previous claim
objections directed to minor informalities.

6.   In response to the amendment of claims 11-12, the examiner has withdrawn the previous

35 U.S.C. 112, second paragraph rejection.

Response to Arguments

7.   Applicant's arguments have been fully considered but they are not persuasive for the

following reasons:

With respect to **Claim 1**, the applicant argues that the combination of Gao *(U.S. Patent:*

6,449,590) and Ozawa *(U.S. Patent: 5,487,128)* fails to teach two fixed codebook units,

specifically a first codebook unit that outputs a difference between a codebook contribution and a

target because Ozawa "does not disclose or suggest using an adaptive codebook with a first

codebook and second codebook" *(Amendment, Pages 16-17)*.

In response, the examiner notes that it is the combination of Gao and Ozawa that teaches

the aforementioned claim limitation. Gao teaches the use of an adaptive codebook *(Col. 21,*

Lines 52-59; and Fig. 2, Element 257) in combination with a fixed codebook structure having a

multiple fixed subcodebooks that are selected based on speech classification *(Fig. 2, Element*

261; and Col. 6, Lines 27-29). Gao is lacking in the teaching of two fixed codebooks

specifically a first codebook unit that outputs a difference between a codebook contribution and a

target. This limitation, however, is taught by Ozawa in the form of a cascaded codebook

structure wherein a first codebook produces a first codebook contribution and an error signal

representing the difference between a codebook search target input and a codebook contribution

candidate *(Fig. 2, Elements 200, 210, 230, 240; and Col. 7, Lines 11-39)*. Ozawa is not relied

upon for the teaching of the use of a combination of an adaptive codebook with a fixed codebook

structure. This feature is taught by Gao *(see above)*. In response to these arguments against the

references individually, one cannot show nonobviousness by attacking references individually

where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413,

208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir.

1986). Thus, the applicants' arguments with respect to claim 1 have been fully considered, but

are not convincing.

The art rejection of independent claims 11-12 and dependents 4, 6, and 9 is traversed for

reasons similar to claim 1 *(Amendment, Page 17)*. In regards to such arguments, see the

response directed towards claim 1.

With respect to claims 2-3 and 7-8, the applicant argues that Chhatwal et al *(U.S. Patent:*

5,457,783) teaches away from the other prior art *(Amendment, Pages 17-18)*. In response, the

examiner notes that the bi-pulse codebook is a type of random codebook that models noise-like

unvoiced sounds in combination with an algebraic codebook for voiced sounds in Chhatwal *(Col.*

9, Line 65- Col. 10, Line 55; Col. 13, Lines 38-67; and Col. 15, Line 1-30), as is required in the

claims. Also, Chhatwal teaches that even the traditional method is commonly implemented,

well-known in the art, and still effective for modeling noise *(Col. 13, Lines 50-58)*. Thus, for

these reasons, it is unapparent how the concept of using different types of codebooks for

different speech types, which is the relied upon portion of Chhatwal, teaches away from the other

prior art. Thus, these arguments have been fully considered, but are not convincing.

With respect to Claims 5 and 10, the applicant argues that Westerlund et al (U.S. Patent:

6,757,654) teaches the distribution between the LTP gain and the algebraic gain, whereas the

presently claimed invention teach a ratio between a fixed codebook gain and other fixed gain

values *(Amendment, Page 18)*. In response, the examiner notes that this limitation is taught by

the combination of the teachings of Gao and Westerlund. Gao teaches the concept of the use of

multiple fixed codebooks having associated gain factors (Fig. 2, Elements 261 and 263), while

Westerlund teaches the a ratio between a fixed gain and other gains can be calculated (Col. 21,

Lines 30-45). Thus, it is the combination of the prior art of record that teaches the

aforementioned claim limitation. In response to these arguments against the references

individually, one cannot show nonobviousness by attacking references individually where the

rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The new claims are argued for reasons similar to the preceding claims *(Amendment, Page*

18). In regards to such arguments, see the above response.

Claim Objections

8.   **Claims 11-15** are objected to because of the following informalities:

The cancellation of the types of speech characteristic information from the independent

claims 11-12 *(and new claim 15 which does not include such characteristics)* has led to multiple

antecedent basis issues *(for example- "the adaptive codebook pitch delay value")*, which require

correction. The dependent claims fail to overcome these informalities, and thus, are also

objected to by virtue of their dependency.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

9.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10.   **Claim 15** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Although claim 15 falls within a statutory category *(i.e., method)*, claim 15 recites a step for retrieving abstract vector data that do not, in themselves, produce a "useful, concrete, and tangible result", and thus, are not directed to a practical application. In order to be considered statutory, the claimed invention as a whole must be useful and accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. In the present case, a step of retrieving abstract vector data is not what produces a "useful, concrete, and tangible result" in the present invention *(which in the case of the present invention is a synthesized speech signal, see claim 12)*. It is a synthesis filtering step, which produces this result *(see claim 12)*. As this step is not recited in claim 15, this claim is directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12.   **Claims 1, 4, 6, 9, and 11-15** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Gao *(U.S. Patent: 6,449,590)* in view of Ozawa *(U.S. Patent: 5,487,128)* and further in

view of Laflamme et al *("16 Kbps Wideband Speech Coding Technique Based on Algebraic*

CELP," 1991).

With respect to **Claim 1**, Gao discloses:

A speech characteristic classification unit, which stipulates a characteristic of speech

corresponding to a current frame statistically using an open-circuit pitch value and a linear

prediction coefficient in which a speech signal to be coded is perceptual weigh filtered

(*voiced/unvoiced classification unit, Col. 12, Lines 14-20; Fig. 2, Element 279, utilizing a*

perceptually weighted input speech signal having an open loop pitch value and linear prediction

(LP) parameters, wherein different classes are represented by different subcodebooks, Col. 8,

Line 63- Col. 9, Line 6; Col. 13, Lines 8-29; Fig. 2, Elements 219, 239, and 241);

An adaptive codebook retrieving unit, which retrieves a pitch delay value around the

open-circuit pitch value, calculates a pitch gain value, generates an adaptive codebook

contribution signal corresponding to the retrieved pitch delay value, and outputs a difference

between the generated adaptive codebook contribution signal and the perceptual weigh filtered

signal as a first fixed codebook target signal *(adaptive codebook search around an open loop*

pitch lag to generate a pitch delay, gain value, and an adaptive codebook contribution, Col. 9,

Lines 16-33; Col. 21, Lines 52-59; Col. 22, Lines 34-54; Fig. 2, Element 257; and a fixed

codebook target signal as a difference between a perceptually weighted speech signal and an

adaptive codebook contribution, Col. 9, Lines 28-33; Fig. 2, Element 253);

A fixed codebook retrieving unit, which includes at least two second fixed codebooks according to a speech characteristic *(fixed codebook comprising a plurality of fixed subcodebooks, Fig. 2, Element 261)*, selects a second fixed codebook according to the speech characteristic *(subcodebook selection based on speech classification, Col. 6, Lines 27-39; and Fig. 2, Elements 261, 275, 279)*, and retrieves second fixed codebook indices that can express the fixed codebook target signal most properly (fixed codebook search based on a generated target signal *(Col. 9, Lines 28-33)*, and fixed codebook gain values *(fixed codebook gain, Col. 9, Lines 34-40; Col. 36, Line 45- Col. 37, Line 35; and Fig. 2, Element 263)*;

A parameter multiplexer, which quantizes and multiplexes the speech characteristic information, the pitch delay value, the pitch gain value, the first fixed codebook index, the fixed codebook indices, and the fixed codebook gain values, makes them as a bit stream, and transmits the bit stream to an external speech decoding terminal *(quantizing and multiplexing all generated speech parameters into a bit stream at a multiplexer, Col. 6, Line 57- Col. 7, Line 11; Col. 41, Lines 15-17; and Fig. 4, Element 419; and decoder, Fig. 5)*.

Although Gao discloses a speech encoder comprising an adaptive codebook and a second fixed codebook having multiple subcodebooks, Gao does not teach two fixed codebook units, specifically a first codebook unit that outputs a difference between a codebook contribution output and a searching input to the first codebook. Ozawa, however, discloses a cascaded codebook structure wherein a first codebook produces a first codebook contribution and an error signal representing the difference between a codebook search target input and a codebook contribution candidate *(Fig. 2, Elements 200, 210, and 220; and Col. 7, Lines 11-39)* and a second codebook produces a second codebook contribution based on the error generated using

the first codebook *(Fig. 2, Elements 230 and 240)*. Ozawa further teaches a first codebook structure comprising a single codebook and a second codebook structure comprising multiple subcodebooks *(Fig. 2)* and mentions generating gain to be associated with a codebook contribution (*Col. 1, Lines 37-40*).

Gao and Ozawa are analogous art because they are from a similar field of endeavor in speech signal encoding. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Gao with the cascaded codebook structure taught by Ozawa in order to implement a speech coding scheme that reduces memory necessary for codebook storage and is high in performance *(Ozawa, Col. 2, Line 65- Col. 3, Line 5)*.

Although the combination of Gao and Ozawa discloses all of the features of the claimed invention and Gao further discloses CELP coding *(Col. 8, Lines 5-7)*, Gao and Ozawa do not specifically mention wideband speech signal encoding. Laflamme, however, recites the ability to encode wideband speech using a CELP coding scheme *(Section 1, Page 13)*.

Gao, Ozawa, and Laflamme are analogous art because they are from a similar field of endeavor in speech signal encoding. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Gao in view of Ozawa with the concept of wideband speech encoding taught by Laflamme in order to encode a higher quality speech signal *(Laflamme, Section 1, Page 13)*.

With respect to **Claim 4**, Gao further discloses:

The second fixed codebook gain values include all gain values of each of the second fixed codebooks *(second fixed codebook gain that is calculated for all fixed subcodebooks, Col. 36, Line 45- Col. 37, Line 35)*.

Claim 6 recites the corresponding method performed by the system described in claim 1, and, thus is rejected under similar rationale.

Claim 9 contains subject matter similar to Claim 4, and thus, is rejected for the same reasons.

With respect to **Claim 11**, Gao discloses:

A parameter demultiplexer, which demultiplexes a bit stream transmitted from an external speech coder *(demultiplexer, Fig. 5, Element 513, that demultiplexes a bit stream from a remote speech encoder, Col. 7, Lines 18-27)*, including parameters, such as speech characteristic information, an adaptive codebook pitch delay value, an adaptive codebook pitch gain value, fixed codebook indices, and second fixed codebook gain values and restores the parameters *(transmitted speech parameters that form a bitstream generated by an encoder (Col. 6, Line 57- Col. 7, Line 10) and are received by a decoder including: a fixed codevector representative of a fixed subcodebook corresponding to different speech characteristics, Col. 6, Lines 27-39; an adaptive codebook pitch delay, gain value, and an adaptive codebook contribution, Col. 9, Lines 16-33; Col. 21, Lines 52-59; Col. 22, Lines 34-54; Fig. 2, Element 257; fixed codebook innovations, Col. 9, Lines 28-33; and fixed codebook gains, Col. 9, Lines 34-40; Col. 36, Line 45- Col. 37, Line 35; and Fig. 2, Element 263)*;

An adaptive code vector generator, which obtains an adaptive code vector corresponding to the adaptive codebook pitch delay value and the adaptive codebook pitch gain value *(adaptive codebook generator that generates an adaptive codevector based on the pitch delay index generated at an encoder, Col. 7, Lines 28-43; and Fig. 5, Element 515)*;

A second fixed code vector generator, which selects a second fixed codebook from a

plurality of second fixed codebooks using the speech characteristic information *(decoder*

comprising a fixed codebook, wherein the fixed codebook contains indexes corresponding to a

fixed codebook utilized at a decoder having multiple fixed subcodebooks corresponding to a

speech characteristic, Fig. 5, Element 519; Fig. 2, Element 261; Col. 6, Lines 27-39; and

selecting fixed codevectors based on an indices corresponding to the different subcodebooks,

thus effectively selecting the subcodebooks, Col. 7, Lines 28-43), obtains a fixed code vector

corresponding to the second fixed codebook index and the second fixed codebook gain value

(fixed codevector and associated gain, Col. 7, Lines 28-43);

An adder, which adds the adaptive code vector and the first and second fixed code

vectors to one another and generates an excitation signal *(adder (unlabeled) in Fig. 5; and*

generated excitation signal, Col. 7, Lines 28-43), and wherein the excitation signal is linear

prediction synthesis filter processed and post-processing filter processed and is generated as a

speech synthesis signal *(LP synthesis filter processing and post filtering, Col. 10, Lines 9-21;*

and Fig. 5, Elements 531 and 535).

Although Gao discloses a speech decoder comprising an adaptive codebook and a second

fixed codebook having multiple subcodebooks, Gao does not teach two fixed codebook units,

specifically a first codebook unit that outputs a first decodable codevector. Ozawa, however,

discloses a cascaded codebook structure wherein a first codebook produces a first codebook

contribution and an error signal representing the difference between a codebook search target

input and a codebook contribution candidate *(Fig. 2, Elements 200, 210, and 220; and Col. 7,*

Lines 11-39) and a second codebook produces a second codebook contribution based on the error

generated using the first codebook *(Fig. 2, Elements 230 and 240)*. Ozawa further teaches a first

codebook structure comprising a single codebook and a second codebook structure comprising

multiple subcodebooks *(Fig. 2)* and mentions generating gain to be associated with a codebook

contribution *(Col. 1, Lines 37-40)*.

Gao and Ozawa are analogous art because they are from a similar field of endeavor in

speech signal encoding. Thus, it would have been obvious to a person of ordinary skill in the art,

at the time of invention, to modify the teachings of Gao with the cascaded codebook structure

taught by Ozawa in order to implement a speech coding scheme that reduces memory necessary

for codebook storage and is high in performance *(Ozawa, Col. 2, Line 65- Col. 3, Line 5)*.

Although the combination of Gao and Ozawa discloses all of the features of the claimed

invention and Gao further discloses CELP coding/decoding *(Col. 8, Lines 5-7)*, Gao and Ozawa

do not specifically mention wideband speech signal processing. Laflamme, however, recites the

ability to encode wideband speech using a CELP coding scheme *(Section 1, Page 13)*.

Gao, Ozawa, and Laflamme are analogous art because they are from a similar field of

endeavor in speech signal encoding. Thus, it would have been obvious to a person of ordinary

skill in the art, at the time of invention, to modify the teachings of Gao in view of Ozawa with

the concept of wideband speech encoding taught by Laflamme in order to encode a higher

quality speech signal *(Laflamme, Section 1, Page 13)*.

Claim 12 recites the corresponding method performed by the system described in claim

11, and, thus is rejected under similar rationale.

With respect to **Claims 13-14**, Gao discloses the speech characteristics, as applied to

claim 11.

Claim 15 contains subject matter similar in scope to claim 11, and thus, is rejected under similar rationale.

13.   **Claims 2-3 and 7-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Ozawa further in view of Laflamme et al and yet further in view of Chhatwal et al *(U.S. Patent: 5,457,783)*.

With respect to **Claim 2**, Gao in view of Ozawa and further in view of Laflamme discloses the speech encoder having an adaptive codebook and cascaded fixed codebooks, as applied to Claim 1. Although Gao discloses selecting different types of codebooks for voiced/unvoiced speech *(subcodebook selection based on speech classification, Col. 6, Lines 27-39; and Fig. 2, Elements 261, 275, 279)*, Gao in view of Ozawa and further in view of Laflamme does not specifically suggest the use of a random codebook for fricatives and an algebraic codebook for other speech sections, however Chhatwal discloses the use of an algebraic codevector codebook for voiced speech sections *(Col. 9, Line 65- Col. 10, Line 55)* and the use of a random codebook for unvoiced fricatives *(Col. 13, Lines 38-67; and Col. 15, Lines 1-30)*.

Gao, Ozawa, Laflamme, and Chhatwal are analogous art because they are from a similar field of endeavor in speech signal encoding. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Gao in view of Ozawa and further in view of Laflamme with the specific codebooks taught by Chhatwal in order to provide a codebook capable of effectively modeling unvoiced signal classes *(Chhatwal, Col. 13, Lines 38-67)*.

With respect to **Claim 3**, Chhatwal discloses the random codebook used for unvoiced

fricatives and the algebraic codebook used for voiced speech, as applied to Claim 2.

Claims 7-8 contain subject matter respectively similar to claims 2-3, and thus, are

rejected for the same reasons.

14.   **Claims 5 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in

view of Ozawa further in view of Laflamme et al and yet further in view of Westerlund et al

(U.S. Patent: 6,757,654).

With respect to **Claim 5**, Gao in view of Ozawa and further in view of Laflamme

discloses the speech encoder having an adaptive codebook and cascaded fixed codebooks, as

applied to Claim 1. Although Gao discloses multiple fixed codebooks having associated gains

(Fig. 2, Elements 261 and 263), Gao in view of Ozawa and further in view of Laflamme does not

specifically suggest encoding a second standardized fixed codebook gain and using that

standardized gain in a ratio with other fixed codebook gain values. Westerlund, however,

discloses such a ratio between standardized fixed codebook values and other codebook gains

(ratio or distribution comprising a long-term prediction gain and algebraic codebook gain, Col.

21, Lines 30-45).

Gao, Ozawa, Laflamme, and Westerlund are analogous art because they are from a

similar field of endeavor in speech signal encoding. Thus, it would have been obvious to a

person of ordinary skill in the art, at the time of invention, to modify the teachings of Gao in

view of Ozawa and further in view of Laflamme with the ratio calculation taught by Westerlund

in order to provide a predictor for algebraic codebook gain *(Westerlund, Col. 21, Lines 30-31)*.

Claim 10 contains subject matter similar to Claim 5, and thus, is rejected for the same

reasons.

Conclusion

15.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

16.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632.

The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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